

LISTING OF CLAIMS

1. (currently amended): A eukaryotic host cell transformed with a nucleic acid construct comprising a nucleotide sequence encoding a xylose isomerase comprising an amino acid sequence that has at least 70 % sequence identity with the amino acid sequence of SEQ ID NO: 1, wherein, when ~~whereby~~ the nucleic acid construct is expressed, ~~upon transformation of the host cell, confers to the host cell~~ acquires the ability to grow on xylose as a carbon source.

2. (currently amended): A transformed host cell according to claim 1, wherein the host cell is a yeast cell, ~~preferably a yeast that belongs to one of the genera: *Saccharomyces*, *Kluyveromyces*, *Candida*, *Pichia*, *Schizosaccharomyces*, *Hansenula*, *Kloeckera*, *Schwanniomyces*, and *Yarrowia*.~~

3. (currently amended) The yeast ~~A transformed host cell~~ according to claim ~~[[2]]~~ 18 ; ~~wherein the yeast belongs to one~~ that is a member of the a species selected from the group consisting of ~~[[:]]~~ *S. cerevisiae*, *S. bulderi*, *S. barnetti*, *S. exiguus*, *S. uvarum*, *S. diastaticus*, *K. lactis*, *K. marxianus*, and *K. fragilis*.

4. (currently amended): A transformed host cell according to claim 1, wherein the host cell is a filamentous fungus, ~~preferably a filamentous fungus that belongs to one of the genera: *Aspergillus*, *Trichoderma*, *Humicola*, *Acremonium*, *Fusarium*, and *Penicillium*.~~

5. (currently amended) A transformed host cell of claim 1 ~~according to any one of the preceding claims, whereby~~ wherein the nucleotide sequence encoding a xylose isomerase is operably linked to a promoter that drives ~~causes sufficient~~ expression of the xylose isomerase in the host cell, such that ~~to confer to the host cell the ability to isomerise~~ can isomerize xylose ~~[[in]]~~ to xylulose.

6. (currently amended) A transformed host cell according to claim 5 ~~[[6]]~~, wherein ~~whereby~~ the promoter is insensitive to catabolite repression in the host cell.

7. *(currently amended)* A transformed host cell according to claim 1 ~~any one of the preceding claims, whereby the host cell that further~~ comprises a genetic modification that results in a characteristic selected from the group consisting of:

- (a) increased transport of xylose into the host cell;
- (b) increased xylulose kinase activity;
- (c) increased flux of the pentose phosphate pathway;
- (d) decreased sensitivity to catabolite ~~respression~~ repression;
- (e) increased tolerance to ethanol, osmolarity or organic acids; or and;
- (f) decreased ~~reduced~~ production of by-products,

which increase or decrease is in comparison to a similar cell that does not comprise said genetic modification.

8. *(currently amended)* A transformed host cell according to claim 7, wherein the genetic modification ~~consist of~~ results in (i) overexpression of an endogenous gene[[s]], (ii) expression of a heterologous gene[[s]], or (iii) a combination of (i) and (ii) ~~thereof~~, and

~~whereby~~ wherein the gene being expressed or overexpressed is selected from the group consisting of a gene encoding:

- (a) a hexose ~~or pentose~~ transporter;
- (b) a pentose transporter;
- (c) a[[n]] xylulose kinase;
- (d) an enzyme from the pentose phosphate pathway,
- (e) a glycolytic enzyme, and
- (f) an ethanologenic enzyme[[s]].

9. *(currently amended)* A transformed host cell according to claim 7, wherein the genetic modification results in ~~consist of~~ the inactivation of an endogenous ~~genes, whereby the gene~~ which is selected from the group consisting of:

- (a) a gene encoding a hexose kinase ~~gene~~;
- (b) the *Saccharomyces MIG1* gene; ~~and~~
- (c) the *Saccharomyces MIG2* gene;[[s]] and
- (d) a gene homologous to (a), (b) or (c) and which hybridizes thereto ~~hybridising~~

~~homologues thereof.~~

10. *(currently amended)* A transformed host cell according to claim 1 ~~any one of the preceding claims, whereby the host cell~~ that further expresses one or more enzymes that confers on ~~to~~ the host cell the ability to produce lactic acid, acetic acid, succinic acid, amino acids, 1,3-propanediol, ethylene, glycerol, a β -lactam antibiotic[[s]] or ~~and~~ a cephalosporin[[s]].

11. *(currently amended)* A transformed host cell according to claim 10 that further comprises, ~~whereby the host cell contains~~ a genetic modification that results in decreased alcohol dehydrogenase activity.

12. *(currently amended)* A process for producing ethanol, ~~whereby the process comprises~~ comprising the steps of:

- (a) fermenting a medium containing a source of xylose with the [[a]] transformed host cell ~~as defined in any one of claim~~[[s]] 1~~[[9]]~~, which ~~whereby the~~ host cell ferments xylose to ethanol, and, optionally,
- (b) recovering ~~recovery of~~ the ethanol.

13. *(currently amended)* A process according to claim 12, wherein ~~whereby~~ the medium also contains a source of glucose.

14. *(currently amended)* A process according to claim[[s]] 12 ~~or 13~~, wherein ~~whereby~~ the production volumetric of ethanol productivity is occurs at a rate of at least 0.5 g ethanol per liter ~~litre~~ per hour.

15. *(currently amended)* A process according to ~~claims any one of claims~~ claim 12 ~~[[14]]~~, wherein ~~whereby~~ the ethanol yield is at least 50 %.

16. *(currently amended)* A process for producing, as a fermentation product, ~~selected from the group consisting of~~ lactic acid, acetic acid, succinic acid, an amino acid[[s]], 1,3-propanediol, ethylene, glycerol, a β -lactam antibiotic[s] or ~~and~~ a cephalosporin[[s]], which ~~whereby the~~ process comprises the steps of:

- (a) fermenting a medium containing a source of xylose with the [[a]] transformed host cell ~~as defined in claims~~ of claim 10 ~~or 11~~, ~~whereby the~~ which host cell ferments xylose to yield the fermentation product, and, optionally,
- (b) recovering ~~recovery of~~ the fermentation product.

17. *(currently amended)* A process according to claim 16, wherein ~~whereby~~ the medium also contains a source of glucose.

18. *(new)* The yeast cell of claim 2 that is a member of a genus selected from the group consisting of *Saccharomyces*, *Kluyveromyces*, *Candida*, *Pichia*, *Schizosaccharomyces*, *Hansenula*, *Kloeckera*, *Schwanniomyces*, and *Yarrowia*.

19. *(new)* The filamentous fungus cell of claim 4 that is a member of a genus selected from the group consisting of *Aspergillus*, *Trichoderma*, *Humicola*, *Acremonium*, *Fusarium*, and *Penicillium*.

20. *(new)* The process of claim 16 wherein the host cell further comprises a genetic modification that results in decreased alcohol dehydrogenase activity.